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AMENDMENTS TO THE CLAIMS

1. –12. (canceled)

13. (Currently amended) A method of replicating a nucleic acid array, the method comprising:

(a) immobilizing first nucleic acid probes on a surface of a first substrate to manufacture a template nucleic acid array,

wherein the surface of the first substrate is patterned by photolithography with a metallic pattern having protruding portions;

wherein each of the first nucleic acid probes includes a terminal thiol group, a first polynucleotide that has a sequence complementary to a second polynucleotide to be synthesized and a primer binding site,

wherein the primer binding sites of the immobilized first nucleic acid probes have various base sequences;

wherein immobilizing one of the first nucleic acid probes comprises

filling a recessed portion of an uneven substrate with a solution of the first nucleic acid probe, wherein the uneven substrate is patterned with recessed portions by photolithography; and

bringing a protruding portion of the metallic pattern of the first substrate into contact with the solution such that the first nucleic acid probe is immobilized on the surface of the protruding portion of the metallic pattern of the first substrate;

(b) binding a plurality of primers to the primer binding sites of the immobilized first nucleic acid probes at conditions such that the plurality of primers hybridizes to the primer binding sites having various base sequences,

wherein each primer in the plurality of primers is identical in base sequence;

(c) in-situ synthesizing the second polynucleotide, initiating from at least one of the primers using the first polynucleotide as a template; and

(d) transferring second nucleic acid probes, each of which includes the second polynucleotide and the primer, to a second substrate from the first substrate.

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14. (New) The method of claim 13, wherein the protruding metallic pattern is formed of gold, platinum, silver or a combination of the foregoing materials.

15. (New) The method of claim 14, wherein the protruding metallic pattern is formed of platinum.

16. –18. (Canceled)

19. (New) The method of claim 13, wherein a surface of the second substrate is treated such that the surface is coated with streptavidin or an aldehyde.

20. (new) The method of claim 13, wherein the primers have a terminal biotin or amino group.

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21. (~~New~~Currently amended)A method of replicating a nucleic acid array, the method comprising:

(a) manufacturing a template nucleic acid array by immobilizing on a surface of a first substrate first nucleic acid probes, each of which includes

a terminal thiol group,

a first polynucleotide that has a sequence complementary to a second polynucleotide to be synthesized and

a primer binding site;

wherein the primer binding sites of the immobilized first nucleic acid probes have various base sequences,

wherein the surface of the first substrate is patterned by photolithography with a metallic pattern having protruding portions;

wherein immobilizing one of the first nucleic acid probes comprises

bringing a protruding portion of the metallic pattern of the first substrate into contact with a solution of the first nucleic acid probe filling a recessed portion of an uneven substrate such that the first nucleic acid probe is immobilized on the surface of the protruding portion of the metallic pattern of the first substrate,

wherein the recessed portion of the uneven substrate is patterned by photolithography;

(b) binding a universal primer to the primer binding site of each of the first nucleic acid probes immobilized on the surface of the first substrate of the template nucleic acid array;

(c) in-situ synthesizing the second polynucleotide initiating from the primer using the first polynucleotide as a template; and

(d) transferring second nucleic acid probes, each of which includes the second polynucleotide and the primer, to a second substrate from the first substrate.